

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF MASSACHUSETTS**

_____	)	
SKYLINE SOFTWARE SYSTEMS, INC.,	)	
Plaintiff,	)	
	)	
v.	)	CIVIL ACTION NO. 04-11129-DPW
	)	
KEYHOLE, INC. and	)	
GOOGLE, INC.,	)	
Defendants.	)	
_____	)	

**PLAINTIFF SKYLINE SOFTWARE SYSTEM, INC.'S  
OPENING CLAIM CONSTRUCTION BRIEF**

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Pursuant to the Court's Scheduling Order dated December 28, 2004, Plaintiff Skyline Software Systems, Inc. ("Skyline") submits its opening brief on claim construction. The parties have exchanged proposed claim constructions and attempted to narrow the issues. Attached as Exhibit A to the supporting Declaration of H. Joseph Hameline is a chart comparing the definitions proposed by both parties for the dispute claim terms.<sup>1/</sup>

## **I. PROCEDURAL ISSUES**

After entry of the Scheduling Order, the parties exchanged limited written discovery. To date, however, Defendants have refused to disclose their non-infringement contentions and produce any documents describing their products. Due to the lack of discovery, Skyline's ability to focus the claim construction issues and to determine whether an actual controversy exists with respect to certain claim terms is limited. Indeed, rather than attempt to narrow the potentially issues that are actually in dispute, three days before Skyline's deadline for filing its Opening Brief, Defendants supplemented their interrogatory answers to identify *61 claim terms, phrases and sentences that they contend are in dispute* and require construction by the Court. Exh. D (Keyhole's Supplemental Answer to Int. No. 10).

The Federal Circuit has stressed that claim construction must be limited only to "resolution of *disputed* meanings," *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997) (emphasis added), and has directed district courts only to construe "those terms ... that are in controversy, and only to the extent necessary to resolve the controversy." *Vivid Tech., Inc. v. American Science & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999). Information about the accused product is necessary to ensure that the Court does not improperly render an advisory claim construction opinion. *Laitram Corp. v. Cambridge Wire Cloth Co.*, 919 F.2d 1579, 1581 (Fed. Cir. 1990) (stating that federal courts "do not sit, however, to decide

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<sup>1/</sup> All exhibits cited in this memorandum are attached to the Hameline Declaration.

hypotheticals or to issue advisory opinions.”); *see also Steele Co. v. Citizens for a Better Env’t*, 523 U.S. 83, 101 (1998) (stating that “advisory opinions [have been] disapproved by this Court from the beginning[.]”).

Numerous courts have voiced concern that conducting claim construction without discovery on infringement may result in what is, in effect, an advisory ruling on claims that may not be in dispute and in a context in which the Court is not adequately informed on the real issues in the case. *See, e.g., Surgical Corp. v. Ethicon*, 103 F.3d 1554, 1568 (Fed. Cir. 1997); *Toten, Inc. v. City of Visalia*, 44 USPQ2d 1312, 1314 (E.D. Cal. 1997); *see also* Exh. F (*The Interpretation of Patent Claims*, Markman Subcommittee of the Patent Litigation Committee of the American Intellectual Property Law Association, AIPLA Quarterly Vol. 32, No. 1, at 58 (“Construing the claims prior to any discovery is inefficient because it requires the court to construe claims that ultimately may not be in dispute.”)). Nonetheless, pursuant to the Court’s Scheduling Order, Skyline submits this opening memorandum on the issue of claim construction while reserving its right to address this issue as discovery proceeds.

## **II. RELEVANT FACTS**

The ‘189 Patent relates generally to methods and apparatus for streaming terrain data from a remote computer to a local computer, typically in what is known as a client-server environment. Keyhole and Google market and sell a suite of products that provide the user with the ability to download, display, and navigate through three dimensional (3D) terrain data. Defendants’ products utilize methods and an apparatus claimed in the ‘189 Patent to stream the terrain data from the server over the Internet and to be rendered on the user’s computer.

### **A. Skyline’s Patent Solved A Long-Standing Problem in the Art.**

Skyline is a pioneer in designing three-dimensional visualization systems and holds

a number of patents relating to computer rendering of 3D images.<sup>2/</sup> Certain methods for computer rendering 3D images were known in the art prior to the '189 Patent. Exh. C ('189 Patent, col. 1, lns. 40-45). The amount of data required to display such images, however, is very large, particularly, the data required to travel over terrain and to zoom into higher resolutions of terrain areas. Most home computers lack sufficient storage to allow a user to travel through diverse terrain at various levels of resolution. *See id.*, col. 2, lns. 26-37. Consequently, certain prior art suggested the use of a CD-ROM to store data to address this problem. This approach required the user to acquire a CD-ROM for each terrain area, which would frequent require updates to reflect changes in the terrain. *Id.*, col. 1, lns. 50-60.

Due to the volume of the data required for computer rendering of 3D images, providing data over the Internet or other communication connections under the prior art was difficult and had significant limitations. These problems resulted from limitations in prior systems with respect to the speed and amount of information that could be streamed and the then-existing methods of downloading such information. *Id.*, col. 1, lns. 33-39. Skyline resolved these problems through its extensive research and development efforts.

## **B. Skyline's Patented Invention**

The '189 Patent describes methods and apparatus for: (1) streaming and presenting large volumes of data over a low speed communication link (such as over the Internet via a modem); (2) providing an interactive experience for the user, including the ability to select a path over terrain; and (3) selecting the perspective and resolution or distance of the viewer from the terrain. *Id.*, col. 2, lns. 1-22, col. 6, lns. 49-50, 58-59, col. 8, lns. 1-5.

The '189 Patent relates generally to computerized terrain displays of three-dimensional images. It provides an efficient means of streaming data and rendering a more seamless view to

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<sup>2/</sup> Those patents include U.S. Patent Nos. 6,111,583, 6,433,792, and 6,704,017.

the user. The data representing a terrain image (which may cover, for example, portions of Earth, other planets or atomic structures (*see* '189 Patent, col. 16, lns. 9-24)) is divided into data blocks.<sup>3/</sup> *Id.*, FIG. 2. Terrain images include topographical data, such as elevation or altitude data (*see id.*, col. 2, lns. 11-14), and image data from aerial or satellite photography (*see id.* col. 8, lns. 32-37). The data blocks may also include additional data objects, such as labels, lines or 3D objects (including map symbols, roads, buildings, and proposed structures) that are associated with particular locations in or as part of the terrain (*see id.*, col. 8, lns. 36-37). The viewer may decide to display or not display these objects. *Id.*, col. 8, lns. 37-58; col. 10, lns. 6-14; col. 13, lns. 58-60.

The database is constructed by dividing the data into a grid or blocks, which are assigned the highest resolution level. *Id.*, col. 9, lns. 55-57. Blocks of lower resolution may be prepared by eliminating data from an original block. *Id.*, col. 9, lns. 55-61. For each block of a lower resolution, there are typically four blocks of a higher resolution level that cover the same terrain area, but contain a significantly greater amount of detail for that area (and four blocks for each block in that set of four blocks, etc.). *Id.*, col. 9, lns. 9-13, FIG. 2. The various resolution levels of the data blocks then correspond to a perceived distance from the terrain. *Id.*, col. 8, lns. 61-67. The blocks are arranged in a hierarchical structure based on the different (*i.e.*, increasing or decreasing) resolution levels. *Id.*, col. 3: 3-12. The blocks with the highest resolution level have the most amount of detail per unit area. *Id.*, col. 3, lns. 6-9. The blocks are referenced using coordinates, such as x, y, longitude, latitude, height and/or resolution level. *Id.*, col. 9, lns. 35-39.

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<sup>3/</sup> The following description of the '189 Patent refers generally to the preferred embodiments described in the Patent as a focused means of explaining the methods and apparatus.

When the user requests a specific area and viewpoint in the terrain, the computer orders the data blocks for that terrain area. *Id.*, col. 3, lns. 16-20. If the user had previously downloaded blocks for that area, they may be available in local memory and may be used to display the requested terrain. *Id.*, col. 11, lns. 62-65. This local memory can be accessed rapidly to provide essentially an immediate image. *Id.*, col. 3, lns. 58-60. If the block is not available in local memory, a block of the requested area with a relatively low level of resolution is downloaded. The block containing a lower level of resolution contains a lesser amount of data than the requested resolution, but can be downloaded and displayed more quickly. *Id.*, col. 3, lns. 16-20. Resolution blocks with incrementally higher resolution are downloaded, thereby sharpening the image, until the block matching the requested location and resolution has been downloaded. *Id.*, col. 3, lns. 20-23; col. 14, lns. 47-54. As the user calls for higher resolution images (or a closer viewpoint to the terrain) by, for example, moving from a view of a particular city to a neighborhood, higher resolution blocks again are downloaded and the user sees an image whose resolution increases with time. As the viewer “zooms” in closer to the terrain, higher resolution blocks are downloaded until the maximal resolution level of the available data is provided and displayed. *Id.*, col. 14, lns. 40-53. *See also* Claims 1 & 12.

The claimed method and apparatus allow the viewer to move through the terrain without waiting for the requested higher resolution and related display of the terrain (*i.e.*, by facing a frozen or blank screen) by allowing the higher resolution images to be streamed to the local computer over a relatively low speed communication link (such as the Internet) while the user views lower resolution blocks, which contain significantly less data. *Id.*, col. 1, lns. 33-39; col. 8, lns. 1-6. In addition, certain areas in the terrain that are peripheral or at a greater “distance” from the viewer may remain at a lower resolution, thereby minimizing the amount of data that

must be streamed. Images in the focus of the viewer (or in the middle of screen) are increased to a higher resolution. *Id.*, col. 13, lns. 62-67; col. 14, lns. 1-9 (FIG. 7); col. 14, lns. 46-54. Thus, the user can travel seamlessly to adjacent or peripheral areas of lower resolution while higher resolution data blocks for those areas are provided. The user, therefore, “sees an image at substantially all times and is not prevented from moving the viewpoint while additional data is being sent from the server.” *Id.*, col. 4, lns. 5-9.

The patented invention also includes other methods for enhancing the streaming of data by the selection of additional data blocks by the local computer. *See, e.g., id.*, Claims 7, 9-11. For example, the local computer can order and download blocks within a predetermined range or that are adjacent to the blocks in use so they are available promptly as the viewpoint is changed. *Id.*, col. 14, lns. 60-64. Similarly, in order to make room in the memory for the download of other data blocks, the local computer can remove blocks from the download queue or from the local memory if the requested block is no longer in the requested view. *Id.*, col. 15, lns. 10-32.

### **C. The Representative Asserted Claims**

Pending further discovery, Skyline asserts that Defendants infringe at least Claim 1 of the ‘189 Patent, a method claim, and Claim 12, an apparatus claim. These claims contain the relevant terms in the Patent. Claim 1 provides:

A method of providing data blocks describing three-dimensional terrain to a renderer, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the method comprising:

- receiving from the renderer one or more coordinates in the terrain along with indication of a respective resolution level;
- providing the renderer with a first data block which includes data corresponding to the one or more coordinates, from a local memory;
- downloading from a remote server one or more additional data blocks at a resolution level higher than the resolution level of the first block which include data corresponding to the one or more coordinates if the provided block from the local memory is not at the indicated resolution level.

Exh. B ('189 Patent, col. 16, lns. 28-43). Claim 12 provides that:

Apparatus for providing data blocks describing three-dimensional terrain to a render, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the apparatus comprising:

a local memory which stores data blocks corresponding to coordinates proximal to a current viewpoint of the renderer;  
 a communication link, through which the memory receives the data blocks from a remote server;  
 a processor which receives one or more specified coordinates along with indication of a respective resolution level from a renderer, provides the renderer with the first data block which includes data corresponding to the one or more specified coordinates from a local memory and downloads over the communication link one or more data blocks of resolution level higher than the resolution level of the first data block which include data corresponding to the one or more coordinates if the first block is not from the indicated level.

*Id.*, col. 18, lns. 12-31. The parties dispute the meaning of several terms contained in Claims 1 and 12 and they are discussed, in turn, below.

### **III. LEGAL ARGUMENT**

Claim construction is a matter of law, *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370 (1996), which the Federal Circuit reviews *de novo*. *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1456 (Fed. Cir. 1998) (*en banc*). In construing the terms of patent claims, the Court considers the “intrinsic” evidence surrounding the patent, including: (i) the claim language itself; (ii) the patent specification; and (iii) the prosecution history. *See Markman*, 52 F.3d at 979. These three “intrinsic” sources form the public record upon which competitors are entitled to rely to determine the metes and bounds of a patented invention. *See id.* at 978-79. The claim terms identified by Keyhole as requiring interpretation by the Court are defined in the Patents themselves and are consistent with their plain and ordinary meaning.



**A. There Is A “Heavy Presumption” That Claim Terms Be Given Their Ordinary Meaning.**

Claim construction begins with the words of the claims. *Prima Tek II v. Polypap*, 318 F.3d 1143, 1148 (Fed. Cir. 2003); *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1341 (Fed. Cir. 2001). The Federal Circuit indulges a “heavy presumption” that claim terms carry their ordinary and customary meaning to one of ordinary skill in the relevant art. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366-67 (Fed. Cir. 2002). The Court may use dictionary definitions to establish ordinary meaning. *Id.*; *Texas Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1202-03 (Fed. Cir. 2002). Indeed, such sources may “be considered along with the intrinsic evidence when determining the ordinary meaning of claim terms.” *Bell Atlantic Network, Inc. v. Covad Communications Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001).

Although claim construction begins with the claim language itself, “the specification is always highly relevant to the claim construction analysis ...[as] it is the single best guide to the meaning of a disputed term.” *Vitronics Corp.*, 90 F.3d at 1582; *Bell Communications Research, Inc. v. Vitalink Communications Corp.*, 55 F.3d 615, 621 (Fed. Cir. 1995) (“A claim must be read in view of the specification of which it is a part.”). Indeed, the “claims are directed to the invention that is described in the specification; they do not have meaning removed from the context from which they arose.” *Netword, LLC v. Centraal Corp.*, 242 F.3d 1347, 1352 (Fed. Cir. 2001).

**B. It Is Legal Error To Read Limitations In The Specification Into The Claims.**

It is axiomatic that “[c]laims, not the specification embodiments, define the scope of protection.” *American Permahedge, Inc. v. Barcana, Inc.*, 105 F.3d 1441, 1444 (Fed. Cir. 1997); *Golight, Inc. v. Wal-Mart Stores, Inc.*, 355 F.3d 1327, 1331 (Fed. Cir. 2004) (“[w]hile claims must be construed in light of the specification . . . limitations from the specification are not to be

read into the claims . . . for ‘[i]t is the claims that measure the invention’’). Thus, Defendants cannot narrow claims by importing limitations from the specification. *Beckson Marine, Inc. v. NFM, Inc.*, 292 F.3d 718, 723 (Fed. Cir. 2002) (citing *Laitram Corp. v. NEC Corp.*, 163 F.3d 1342, 1347 (Fed. Cir. 1998) (“[it is a] well-established principle that a court may not import limitations from the written description into the claims.”)). As the Federal Circuit noted:

[a]n accused infringer [cannot] ... narrow a claim term’s ordinary meaning ... simply by pointing to the preferred embodiment or other structures or steps disclosed in the specification or prosecution history. Indeed ... case law makes clear that a patentee need not ‘describe in the specification every conceivable and possible future embodiment of his invention.’

*CCS Fitness, Inc.*, 288 F.3d at 1366-67 (citations omitted); *see also Axcelis Technologies, Inc. v. Applied Materials, Inc.*, 2002 WL 3161283, \* 2 (D. Mass. Dec. 10, 2002) (Woodlock, J.). Thus, the patent claims are not limited in scope to particular embodiments disclosed in the patent. *See Texas Instruments, Inc. v. U.S. Int’l Trade Comm’n*, 805 F.2d 1558, 1563 (Fed. Cir. 1986).

**C. Skyline’s Proposed Definitions Are Consistent With How The Terms Are Used In The Claims And With Their Plain And Ordinary Meaning To One Skilled In The Art.**

Skyline’s proposed definitions of the disputed claims terms are entirely consistent both with how the terms are used in the claims themselves and with the plain and ordinary meaning of the terms as understood by one of skill in the art at the time of the invention.<sup>4/</sup> Keyhole’s proposed definitions, on the other hand, attempt improperly to narrow the claims by importing limitations from the specification into the claims. As discussed below, the claims are not limited in scope to the particular embodiments disclosed in the Patent.

**1. “data block”**

As used in the Patent, a “data block” is “a quantity, set or amount of information or data representing a portion of the terrain.” Exhs. A (Skyline’s Proposed Claim Definitions); *see also*

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<sup>4/</sup> If the Court decides that such extrinsic evidence is necessary or useful, Skyline will provide such support.

Exhs. B ('189 Patent, col. 8, lns. 18-21) & H (Supp. Ints. at 5). This definition finds ample support in the specification. For example, Figure 2 of the '189 Patent is a schematic illustration of the data structure of images stored in the database. *Id.*, col. 8, lns. 15-17. As shown in Figure 2, an image of the terrain is divided into blocks. *Id.*, FIG. 2. These data blocks (of the highest resolution) are processed by eliminating data from the original blocks and creating blocks of lower resolution. *Id.*, col. 9, lns. 55-61. When data blocks are processed by the local computer, a data block with less data then provides a lower resolution display of the terrain. *Id.*, col. 9, lns. 3-13.

Defendants improperly seek to limit the term "data block" to the preferred embodiment. Defendants propose that "data block" means "a real life image of a terrain area and is comprised of individual sub-blocks of pixels, each pixel represented by a color and elevation attribute; each data block has one particular resolution and is transmitted to or processed by the renderer as a single unit." Exh. D (Defendant's Response to Int. No. 10 at 2). Yet, a data block is not required to be a "real life image" comprised of "sub blocks of pixels." *See* Exh. B ('189 Patent, col. 16, lns. 16-23). Rather, these limitations are merely reference to certain embodiments recited in the specification. *Id.*, col. 8, lns. 34-35. Nor do the claims require that the data blocks contain "a color and an elevation attribute." The specification makes clear that data blocks *may* contain some or all of whatever terrain information exists. For example, they may consist solely of elevation data. *Id.*, col. 5, lns. 37-38. Or, they may contain objects. *Id.*, col. 5, lns. 39-41. Defendants also seek to impose a limitation that a data block be processed "as a single unit." The specification, in fact, compels the opposite conclusion. It provides that data blocks may be "divided into sub-blocks of smaller sizes" and processed as such. *Id.*, col. 8, lns. 29-34. Thus,

the Court should reject Defendants' attempts to import limitations from the specification into the claims.

Consistent with its usage in the Patent, the Court should define "data blocks" as ***"a quantity, set or amount of information or data representing a portion of the terrain."***

## **2. "terrain"**

The term "terrain" is used in the '189 Patent broadly to include "the physical features of an area, object or material, which includes geographic and/or elevation attributes and may include other features, such as color attributes and objects." Exhs. A (Skyline's Proposed Claim Definitions) & H (Supp. Ints. at 5). The specification confirms the patentee's use of the term. For example, the specification provides that "terrain" may include "altitude data," Exh. B ('189 Patent, col. 5, lns. 37-38), objects (*id.*, col. 8, lns. 36-37), and color attributes (*id.*, col. 8, lns. 34-35). Further, the specification makes clear that "terrain" is "not limited to the Earth or parts thereof, and may cover other planets (real or virtual) and/or 3D views of surfaces of real or imaginary objects, such as views showing the atomic structure of material, and the like." *Id.*, col. 16, lns. 16-23; *see also id.*, col. 9, lns. 3-6.

Nonetheless, Defendants attempt to limit the definition of "terrain" to particular embodiments contained in the specification. They propose that the Court define "terrain" narrowly as "the earth's surface as a variation from mean sea level." Exh. D (Defendant's Response to Int. No. 10 at 2). The specification explicitly refutes this narrow definition of "terrain." As recited above, the specification makes clear that "terrain" is "not limited to the Earth ..." and that it may be composed of "3D views of surfaces of real or imaginary objects." Exh. B ('189 Patent, col. 16, lns. 16-23). It simply is not limited to Earth, nor is it limited to "a variation from mean sea level."

Consistent with its usage in the Patent, the Court should define “terrain” as *“the physical features of an area, object or material, which includes geographic and/or elevation attributes and may include other features, such as color attributes and objects.”*

### 3. “data blocks belonging to a hierarchical structure”

The parties essentially agree on the definition of the claim phrase “data blocks belonging to a hierarchical structure.” Skyline asks the Court to interpret this phrase to mean “data blocks arranged into multiple levels of resolution, wherein each level of the structure contains blocks of a different resolution.” Exhs. A (Skyline’s Proposed Claim Definitions) & H (Supp. Ints. at 5). Defendants’ agree with this definition, but seek to add an additional limitation that “each successive level contain data blocks of a higher resolution than those in the preceding level.” Exh. D (Defendants’ Response to Int. No. 10 at 2).

As described above at pages 3-5, the ‘189 Patent describes the hierarchical structure of the database and data blocks. Exh. B (‘189 Patent, col. 3, lns. 3-12; col. 9, lns. 14-21; FIG. 2). For example, the specification states that the “hierarchical database” used in the invention includes terrain areas that are “described in a plurality of blocks *at different resolution levels.*” *Id.*, col. 3, lns. 3-6 (emphasis added). The database is not described as having a resolution that is higher in each successive level, as Defendants request. Rather, the resolution from level to level must only be “different.” *Id.* The hierarchical structure could equally be described as containing data blocks of *lower* resolution than those in the preceding level. While the difference may in the end be one of semantics, Skyline’s proposed definition is consistent with the specification rejected by the Court.

Consistent with its usage in the Patent, the Court should define “data blocks belonging to a hierarchical structure” as *“data blocks arranged into multiple levels of resolution, wherein each level of the structure contains blocks of a different resolution.”*

#### 4. “renderer”

As described in the ‘189 Patent, a “renderer” is something “that may be implemented entirely in software or may include a dedicated hardware processor along with a software package running on a general purpose processor, which performs one or more steps of the recited method and assists in the display of the terrain based on the data provided.” Exh. A (Skyline’s Proposed Claim Definitions). Each portion of this definition finds support in the Patent itself. For example, the specification provides that “the renderer may be implemented entirely in software or may include dedicated hardware.” Exh. B (‘189 Patent, col. 13, lns. 11-17). In the preferred embodiment, a renderer is described as forming a part of a “software package.” *Id.*, col. 3, lns. 20-26; *see also id.*, col. 3, lns. 54-60 (referring to a “rendering program”).

Defendants’ again improperly seek to add multiple limitations to the definition of a “renderer.” In Claim 1, a method claim, Defendants propose the following convoluted definition of a “renderer”: “A software object that (1) determines the coordinates of terrain data required to draw a view on a display and requests the corresponding data blocks of terrain data at a specified resolution level; (2) receives the requested data blocks corresponding to the provided coordinates; and (3) uses the received data to draw the view on the display.” Exh. D (Keyhole’s Supplemental Answer to Int. No. 10 at 13).<sup>5</sup>

First, the Patent makes clear that the renderer is not required to be a “software object.” Rather, the “renderer” may be implemented either “entirely in software or may include dedicated

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<sup>5</sup> Defendants propose a different definition for the term “renderer” in when used in Claim 12, in which they acknowledge that a “renderer” can include hardware. Exh. D (Supp. Ints. at 9).

hardware.” Exh. B (‘189 Patent, col. 13, lns. 11-17, 20-26). Defendants further contend that a renderer, in connection with Claim 12 (the first apparatus claim), is a “dedicated hardware processor that runs a renderer” or a “hardware renderer.” Again, the “renderer” cannot simultaneously be both solely a “software object” and solely “hardware.” *Id.*, col. 13, lns 8-16.

Finally, Defendants’ requested limitation that the renderer “determine the coordinates” and “request the data” merely reflect the preferred embodiment. The coordinates refer to the data blocks, not necessarily pixels. *Id.*, col. 9, lns. 35-37. The specification provides that:

Preferably, renderer determines which blocks and/or sub-blocks include the requested pixels. Alternatively, the cache manager determines which blocks and/or sub-blocks are requested.

*Id.*, col. 11, lns. 24-27; col. 14, lns. 16-18. It is black letter law, however, that “particular embodiments appearing in the written description will not be used to limit claim language that has broader effect.” *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1117 (Fed. Cir. 2004).

Consistent with its usage in the Patent, the Court should define a “renderer” as something *“that may be implemented entirely in software or may include a dedicated hardware processor along with a software package running on a general purpose processor, which performs one or more steps of the recited method and assists in the display of the terrain based on the data provided.”*

## 5. “coordinates in the terrain”

As used in the ‘189 Patent, the phrase “coordinates in the terrain” means “any of a group of one or more numbers used to determine a position in the terrain, such as x, y, longitude, latitude, height, and/or resolution level.” Exhs. A (Skyline’s Proposed Claim Definitions) & H (Supp. Ints. at 5). The claim language itself repeatedly states that the terrain may include “one or

more coordinates[.]” Exh. B (‘189 Patent, col. 16, lns. 28-43, col. 18, lns. 12-31). Thus, there is no limitation on the number of coordinates, other than there must be at least one. This definition is consistent with the common definition of “coordinate” as “[a]ny element in a group of references to a particular location, such as the intersection of a certain row and column.” Exh. D (*Microsoft Computer Dictionary*, at 113 (4<sup>th</sup> ed. 1999)).

The parties’ definitions of “coordinates of the terrain” differ only in the number of “coordinates” that may make up a terrain.<sup>6/</sup> Exh. D (Defendants Response to Int. No. 10 at 2). Defendants seek to limit the number of coordinates to “a pair [or two] coordinates,” while Skyline proposes that the number of coordinates in a terrain may be one or more. *Id.* As stated above, the claims make clear that there can be “one or more” coordinates. Moreover, there is no support in the Patent for Defendants’ arbitrary limitation on the number of coordinates to two. To the contrary, the specification provides that “*three coordinates* preferably represent longitudinal, latitudinal, and height coordinates of the points along the course, as are known in the art of terrain mapping.” *Id.*, col. 10, lns. 39-43 (emphasis added). *See also id.*, col. 9, lns. 35-39; col. 14, lns. 10-15. Even common usage of the word “coordinate” refutes Defendants proposed interpretation. The *Webster’s New World College Dictionary* defines the term “coordinate” as “*any of a set of numbers* in a reference system that locates the position of a point.” Exh. F (*Webster’s New World College Dictionary*, at 306 (3rd ed. 1996) (emphasis added)).<sup>7/</sup> Thus, there must be at least one, but can be three or more, coordinates of the terrain.

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<sup>6/</sup> Other than the limitation one the number of coordinates, the remainder of Defendants’ proposed definition of this claim phrase parallels the definition proposed by Skyline. *Id.* (defining “coordinates of a terrain” as “a pair of coordinates, such as latitude and longitude or x and y coordinates, of a particular location in the terrain.”).

<sup>7/</sup> A “set,” in turn, is defined as “a collection of things belonging, used, or growing together[.]” Exh. F (*Webster’s New World College Dictionary*, at 1228 (3rd ed. 1996)).



Consistent with its usage in the Patent, the Court should define the phrase “coordinates in the terrain” as *“any of a group of one or more numbers used to determine a position in the terrain, such as x, y, longitude, latitude, height, and/or resolution level.”*

#### 6. “communication link”

The term “communication link” is used in the ‘189 Patent in manner that is consistent with the plain and ordinary usage of the term. Skyline proposes that the Court define the term “communication link” as a “connection used for transferring data between computers.” Exhs. A (Skyline’s Proposed Claim Definitions) & H (Supp. Ints. at 6). In describing the preferred embodiment of the invention, the specification states that a “communication link” is established between “a local processor and a server, transferring data blocks describing terrain over the communication link from the server to the local processor....” Exh. B (‘189 Patent, col. 5, lns. 7-15). Skyline’s proposed definition comports with the plain and ordinary meaning of “communication link,” which is defined in the *Microsoft Computer Dictionary* as “the connection between computers that enables data transfer.” Exh. E (*Microsoft Computer Dictionary*, at 98 (4<sup>th</sup> ed. 1999)).

Defendants largely agree with Skyline’s proposed definition, although they seek to limit a “communication link” to a “network connection.” Exh. C (Keyhole’s Answer to Int. No. 10 at 14). While the patent specification discusses the use of the Internet as a public network, the portion of the specification relied upon by Defendants does not specifically mention a “network.” *Id.*; see also Exh. B (‘189 Patent, col. 12, lns. 8-12 (“Connections are preferably standard TCP connections as are known in the art, although any other protocol may be used to form the connection.”)). Moreover, Defendants do not define “network” which simply inserts another

term requiring definition into the patent. Rather, the term communication link is used throughout the Patent in a manner consistent with the term's ordinary meaning. *See id.*, col. 5, lns. 7-15.

Consistent with its usage in the Patent and with its ordinary meaning, the Court define the term "communication link" as a ***"connection used for transferring data between computers."***

## 7. "local memory"

The commonly used term "local memory" requires no more detailed a definition than "memory of a local computer." Exh. A (Skyline's Proposed Claim Definitions). This definition is consistent with the plain and ordinary meaning of the term "local memory," which the *Microsoft Computer Dictionary* defines as "memory that is local to one processor...."<sup>8/</sup> Exh. D (*Microsoft Computer Dictionary*, at 272 (4<sup>th</sup> ed. 1999)).

Defendants propose a lengthy and excessively limiting definition of "local memory."

Defendants propose the following definition:

a memory that is physically part of the local computer that is performing the steps of the recited method. In the specification, the term cache memory is used. "It is noted that the term cache memory is used herein generally to refer to any relatively small memory which can be accessed rapidly by processor 20 and is used to save data which is most likely to be used by the processor.

Exh. D (Defendants' Response to Int. No. 10 at 2, *citing* '189 Patent, col. 11, lns. 58-61). This definition seeks to equate "cache memory" with "local memory." It further requires that the local memory "physically" form a part of the local computer. Yet, neither the claims nor the specification necessarily limit "local memory" to "cache memory," although "cache memory" is used in the preferred embodiments. Exh. B ('189 Patent, col. 11, lns. 58-61). Similarly, neither the claims nor the specification require that the "local memory" be physically part of the local computer. Indeed, even where the term "cache memory" is used, the specification explains that

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<sup>8/</sup> The complete definition of "local memory" is "[i]n microprocessor systems, the memory on the same card or high-speed bus as a particular processor. Typically, memory that is local to one processor cannot be accessed by another without some form of permission." Exh. E (*Microsoft Computer Dictionary*, at 272 (4<sup>th</sup> ed. 1999)).

cache memory may be “any relatively small memory which can be accessed rapidly by the processor;” *id.*, col. 11, lns. 58-61, and which could include a “local hard disk associated with the processor,” *id.*, col. 11, lns. 43-45. Even to the extent that local memory arguably may be equated with cache memory, therefore, it need not physically form a part of the processor. *Id.* See also *id.*, FIG. 5.

Consistent with the usage in the Patent, the Court should define the term “local memory” as a **“memory of a local computer.”**

#### **8. “processor”**

The term “processor” is described in the patent as “a unit comprised of hardware and/or software that processes computer-readable instructions.” Exhs. A (Skyline’s Proposed Claim Definitions) & H (Supp. Ints. at 6). See also Exh. B (‘189 Patent, FIG. 5 (processor 20)). This definition is supported by the specification, which describes the “processor” as follows:

Fig. 5 is a schematic block diagram of processor 20, in accordance with a preferred embodiment of the present invention. The blocks are preferably realized as software processes running on a general-purpose microcomputer, although dedicated hardware realizations are also possible. Preferably, processor 20 comprises a navigator 70 which keeps track of a view point of a virtual viewer.

*Id.*, col. 10: 61-67; see also *id.*, col. 11, lns. 39-44.

Again, Defendants seek to impose limitations on the definition of “processor” that are not supported by the Patent. Defendants propose that a “processor” is “a general purpose processor of the local computer as distinguished from the dedicated hardware processor that runs the ‘renderer.’” Exh. C (Keyhole’s Answer to Int. No. 10 at 14). Defendants, therefore, agree that a “processor,” as used in the Patent, is a general purpose processor. Defendants then seek to distinguish a “processor” from the “dedicated hardware processor” that may be part of the processor. The specification makes clear that the renderer may form a part of the processor. For

example, the specification provides that the “[p]rocessor 20 preferably further comprises a renderer which calculates the view from the viewpoint and continuously renders the view on display.” Exh. B (‘189 Patent, col. 11, lns. 19-21); *see also id.*, FIG. 5. Moreover, as discussed above in Section III(C)(4), the renderer may be implemented entirely of software or it may include dedicated hardware (such as a 3D graphic accelerator). *Id.*, col. 13, lns. 11-16. To define the processor as somehow separate from the 3D graphic accelerator (which is referred to as part of the renderer) where the renderer is part of the processor, is circular at best.

In addition, there is no statement in the Patent that the 3D graphic accelerator, if it is used, cannot be considered part of the processor. Again, Defendants are attempting to slice the definitions too thin in light of the descriptions in the Patent and the term’s ordinary meaning.

Consistent with its usage in the Patent, the Court should define the term “processor” as ***“a unit comprised of hardware and/or software that processes computer-readable instructions.”***

#### **9. “first data block”**

As used in the Patent, a “first data block” quite logically means “a designation of a data block that may be one of a plurality of data blocks.” Exh. A (Skyline’s Proposed Claim Definitions). This claim phrase is a general reference, as typically employed in patent drafting, to a thing or step that may be one of a number of things or steps. Exh. B (‘189 Patent, col. 3, lns. 49-64; *see also id.*, col. 3, lns. 37-53). The specification describes the context for the “first data block” as follows:

Preferably, when the processor needs to render a new image, the processor first uses the data blocks stored in cache memory and concurrently sends download orders for higher resolution level blocks ... if the block is not carried by the cache manager, it is ordered from the server ....”

Exh. B (‘189 Patent, col. 3, lns. 49-64).

Defendants do not appear to disagree with Skyline's proposed construction of this term, as they do not specifically define this claim phrase in their proposed definitions. Thus, consistent with its usage in the Patent, the Court should define that phrase "first data block" as ***"a designation of a data block that may be one of a plurality of data blocks."***

**10. The Court Need Not Re-Define Terms Comprising Claim Sentences Identified By Defendants.**

Defendants have presented a number of additional claim phrases and/or sentences that merely consist of the aggregation of the definitions discussed above. For example, the dispute the meaning of the terms "communication link" and "data blocks" and then later dispute the meaning of the phrase "a communication link, through which the memory receives the data blocks from a remote server." Exh. C (Keyhole's Answer to Int. No. 10 at 14). *See also id.* 13 & 15. Because the parties have proposed definitions of the terms comprising the claim sentences identified by Defendants, the Court need not redefine these terms.

**IV. CONCLUSION**

For the foregoing reasons, in order to ensure that the Court's claim construction is not impermissibly advisory, Skyline respectfully requests that the Court order Defendants immediately to disclose their non-infringement contentions and produce any documents describing their products. Should the Court opt to construe the terms ensuring that the identified claim terms are actually in dispute, Skyline respectfully requests that the Court adopt its proposed construction of the claim terms and phrases provided above. In the alternative, Skyline respectfully requests the opportunity to supplement its proposed definitions following Defendants compliance with its discovery obligations.

Respectfully submitted,

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